

EXHIBIT H

Accident Investigation and Reconstruction
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July 1, 2016

William J. Katt Esq.
Wilson, Elser, Moskowitz, Edelman & Dicker, LLP
740 North Plankinton Ave, Suite 600
Milwaukee, Wisconsin 53203

Dear Mr. Katt:

I am submitting this report in the matter of Daniel McGraw and Susan McGraw vs. Superior Aviation, Ltd., Kubick Aviation Services, Inc., and QBE Insurance Corp.

ACCIDENT BRIEF

The accident occurred on May 6, 2014, at approximately 11:18 AM central daylight time (CDT). The accident occurred near Crivitz Municipal Airport (3D1), Crivitz, Wisconsin. The flight took off from the J. Douglas Bake Memorial Airport, Oconto, Wisconsin. The destination was Ford Airport (IMT), near Iron Mountain, Michigan. The accident aircraft is an amateur built Kinsler Lancair 360 MKII airplane, registered as N246AK. The aircraft experienced a loss of power while in flight and performed a forced landing in a large field with the landing gear retracted. The aircraft impacted terrain and was substantially damaged. The Commercial rated pilot was injured in the crash. At the time of the accident, the aircraft was operating under the provisions of 14 CFR Part 91 as a personal flight. Visual meteorological conditions (VMC) prevailed at the time. The aircraft was registered to, and operated by, Daniel J. McGraw, of Lena, Wisconsin.



THE AIRCRAFT

The accident aircraft was an amateur built Kinsler Lancair 360 MKII airplane. Built in 1999 by Arthur P. Kinsler of Fort Mohave, Arizona.

The Kinsler Lancair 360 MKII is a two seat kit aircraft, powered by a Lycoming fuel injected IO-360-B1E engine, equipped with a constant speed propeller. The Lancair 360 aircraft is a low wing monoplane with retractable tricycle landing gear and retractable flaps. The aircraft is primarily of composite construction. The Lancair 360 series aircraft kits are no longer in production. For a kit plane that is registered in the experimental category, the builder is listed as the manufacturer of the airplane. In this instance, the manufacturer of the accident aircraft was Paul Arthur Kinsler.

The fuel system comprises of a header tank that can be fed independently from the right or left main tanks, using the right or left electric fuel pumps. The header tank supplies fuel to the engine driven fuel pump through the fuel filter and gascolator, and the electric boost pump.

Figure 1 below is a photograph of the accident aircraft.



Figure 1

THE PILOT

The accident pilot was Mr. Daniel J. McGraw. According to the NTSB Factual Report Pilot McGraw held a Commercial Pilot Certificate for airplane single-engine land. He also held ratings for helicopter, and a Certified Flight Instructor (CFI) certificate for airplane single-engine and instrument airplane. Pilot McGraw also held an FAA Third Class Medical Certificate, issued July 2013. At the time he reported having 2,839 hours total flight time, with 4.1 hours flown in the previous 3 months.

ACCIDENT SEQUENCE

The accident pilot made a Narrative History, dated June 1, 2014, of the accident flight. [NTSB Docket, Pilot/Operator Aircraft Accident Report, NTSB Form 6120.1]

On the morning of the accident, 5-6-14. I completed the preflight and let my wife know my departure time, route and ETA for Iron Mountain. The departure from Oconto KOCQ, was uneventful. Approximately 10-15 minutes into the flight, I smelled avgas fumes in the cockpit. I was in the vicinity of Crivitz WI. I looked at my fuel pressure and it read zero. I then put the fuel boost pump ON. The fuel pressure remained at zero, so I turned the boost OFF. I was losing power. I looked for the Crivitz 301 Airport on my moving map and turned for it. I felt that the airport was not very desirable for my airplane. The runway was short, narrow, has displaced threshold and was surrounded by trees. A few years ago a Lancair 360 had run off the end of the runway trying to make a landing. I took a look for the airport, but never saw it. However, I did see a large field that I thought would be the best choice for an emergency landing. I was losing [sic] altitude quickly and established a left base to the field. My primary thoughts were to aviate, maintain control of the aircraft, and NO stall/spin. As I maneuvered for the field, the angle-of-attack indicators audio activated: "angle angle push push". I reduced pitch and bank angle. I still had to maneuver to clear the trees and make an approach to the field. The AOA indicators audio activated again: "angle angle push push". I again reduced pitch and bank angle. I was now clear of the trees and felt that I was going to be able to land in the field. I elected to land with my landing gear UP. I did not want the gear to catch in a soft field and flip, cartwheel or tumble. I thought the best way to survive was to land under control. At an altitude of about 15-20 feet I was still in a slight left turn and maneuvering. I then leveled the wings and flared for the landing.

[NTSB Docket, Pilot/Operator Aircraft Accident Report, NTSB Form 6120.1]

WRECKAGE INFORMATION

The accident aircraft landed in a cornfield in the upright position. An FAA Inspector examined the aircraft at the accident scene. The fuel supply hose was reportedly not attached to the engine driven fuel pump. Figure 2 is a photograph of the engine driven fuel pump.

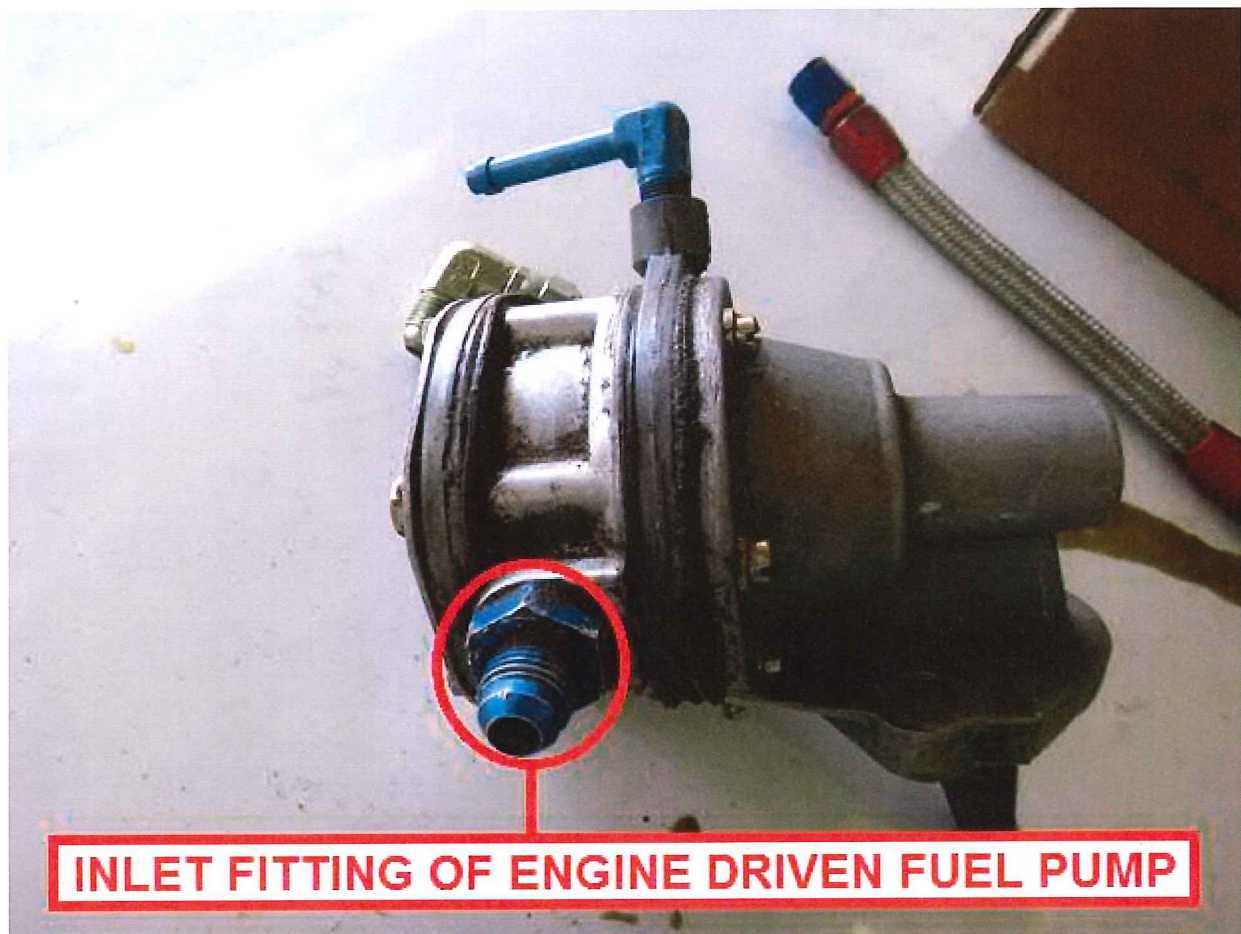


Figure 2

Figure 3 is a photograph of the inlet and outlet hoses from the engine driven fuel pump.



Figure 3

Of specific concern to me was how the fuel pump flex hose became detached from the pump. My own forensic examination of the fuel pump and hose revealed that the pump installation incorporated an aluminum fitting while the flexible hose has a steel B nut.

LANCAIR CONSTRUCTION MANUAL

Chapter 21 of the Lancair Construction Manual (Lancair 320FB, Chapter 21, Lancair Online Product Support Library, <http://www.lancair.com/support/docs-235-320-360/>), page 17 provides:

E. Fuel system (firewall fwd)

The fuel system is obviously critical to safe operations and thus the cause of a high percentage of accidents. Read the entire chapter before starting to work. Proceed slowly, with great care and attention to the smallest details.




At page 21:

WARNING: DO NOT use aluminum fittings where flexible fuel line is to be used between fixed position items and the engine (which moves). These aluminum fittings have been known to fatigue and crack with time.

At page 19:

5. From the outlet side of the boost pump, a flexible line will connect to the engine driven fuel pump. On new pump installations, it may be necessary to adapt the pump threads to the AN type fittings by use of special pump fittings. The Aircraft Spruce catalog lists this part as No. 6470069 (two required). Remember to use only steel AN fittings on the fuel pump since it is attached to a vibrating hunk of iron - the engine.

LANCAIR® 320FB <small>Lancair International Inc. Copyright © 1991, Redmond, OR 97756</small>	21-19	Chapter 21	REV.	0 / 11-1-91	
		ENGINE INSTALLATION - LYCOMING			

The Lancair Construction Manual calls out steel fittings, elbow part number AN822-6 and nipple part number AN816-6. (Lancair 320FB, Chapter 21, p 21) Contrary to the Construction Manual, the fuel pump on the accident aircraft was installed using an aluminum fitting on the inlet side.

The following drawing is taken from Chapter 21 of the Construction Manual

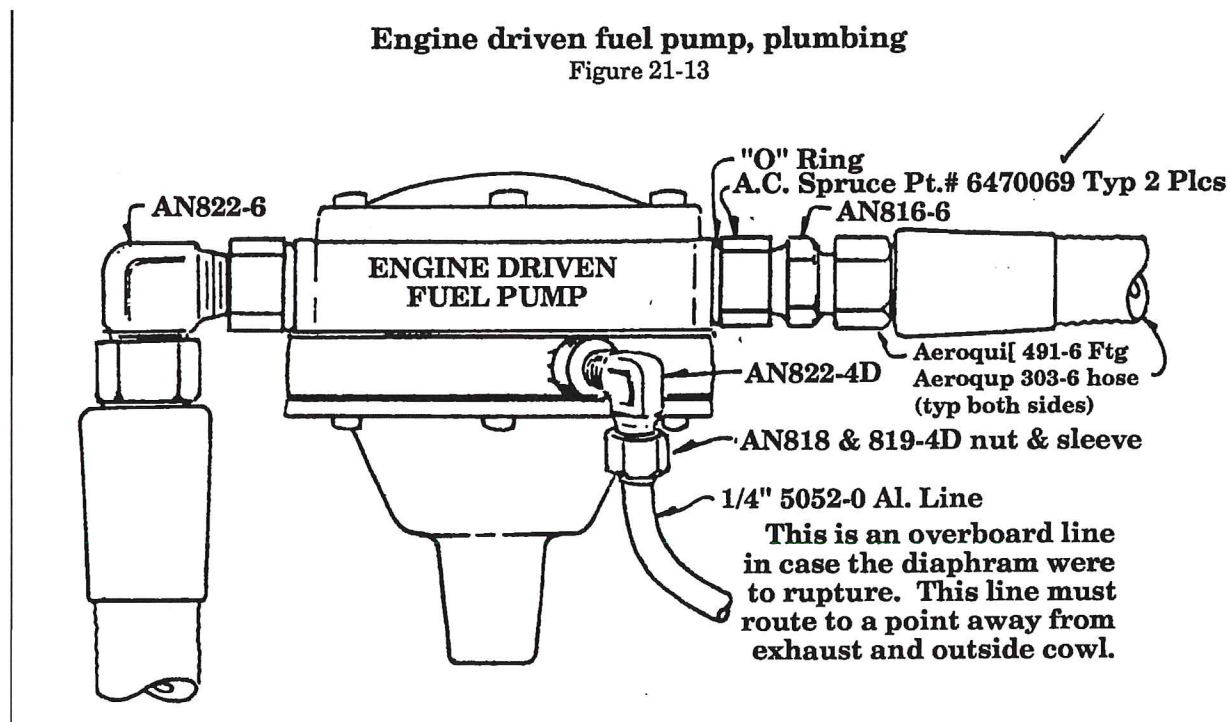


Figure 4

MAINTENANCE ITEM'S

On February 7, 2014, the Annual/Condition Inspection was signed off in Aircraft Logbook. (PLTF 000084) This inspection was completed by Superior Aviation, on Work Order # M-30119. (PLTF 000308) Fuel related maintenance on this Work Order included: "Tighten mounting hardware on the Fire Wall Fuel Strainer[:]" Installed a Fuel Injector Screen on #4

cylinder injector, found screen missing from injector[;] Installed new Fuel Quantity Sending Units[.]”

ANNUAL CONDITION INSPECTION

Each experimental aircraft must be inspected on an annual basis. The annual condition inspection must be conducted in accordance with FAR Part 43 Appendix D.; or, in accordance with an FAA approved manufacturers check list. Advisory Circular 43.13 sets out approved methods, techniques and practices to be used when performing maintenance and conducting inspections.

In the present case, Superior performed the annual condition inspection using FAR 43 Appendix D. The fuel system inspection items are set forth in the Fuel System Group E of the Appendix, which, with respect to fuel lines, requires: “Check fuel lines for security, chaffing, and leakage.” Checking the torque of fittings on the fuel lines is not called out. Neither is the use of torque markings or inspector’s lacquer.

DISCUSSION

The use of any aluminum fitting on the inlet line to the fuel pump was not in conformance with the Lancair Construction Manual. The manual specifically warns that fuel system assembly must be done with “great care and attention to detail.” It also warns that the fuel system is the cause of a “great number” of accidents. The manual also warns that the aluminum fittings are known to “fatigue and crack” when used on the fuel pump. The manual even emphasizes the importance of using steel in this location by pointing out that it is attached to a “vibrating hunk of iron”

In this accident, the aluminum fitting did not crack, however, it did loosen and detach, which is a specific form of fatigue caused by vibration. The use of dissimilar metals in the connection can also lead to a loosening of the connection.

There is no indication in the maintenance records provided that the aluminum fitting used in the fuel pump assembly has ever been changed since manufacture. The same is true for the flexible hose supplying the pump. Accordingly, it appears that the use of improper parts and mismatched metals was done at the time of manufacture.

An annual condition inspection is not a review of the Construction Manual. Indeed, the Construction Manual for the Lancair 360 is not a checklist for conducting an annual condition inspection. What was used for the condition inspection was Part 43 Appendix D, which does not require a torque check on the fittings and connection at issue. In my years of experience as an A&P mechanic with Inspection Authorization, it is not common or standard in the industry to perform a torque check on such connections.

What is required is a check of the security of the fitting. This was accomplished as part of the inspection and no anomaly was noted. No discrepancy such as a fuel leaks was squawked after the inspection and the aircraft operated normally from the time of the condition inspection until the accident. A condition inspection only addresses the condition of the aircraft at the time of the inspection, not into the future. The aircraft was appropriately signed off in compliance with the condition inspection.

It is also not standard in the industry to check for the types of metals used in such a connection. Part 43 Appendix D makes no mention of such a check and a mechanic/inspector performing such a check cannot

be faulted for failing to find such a manufacturing error. Superior personnel would not be expected to identify the improper fitting connections on the fuel pump when they performed the annual condition inspection. It should be noted that Mr. Lykins did not identify the improper materials when he did his forensic inspection.

In my forensic review of this accident, in an effort to identify why this connection failed, I consulted materials well beyond those that would be used by a mechanic in a typical condition inspection. Namely, I went to the construction reference in order to try and identify the failure mode.

It should be noted that chapter 21 of the the Lancair Construction Manual does not call out the use inspector's lacquer for the fuel line connections.

OPINIONS

This accident was caused by the fatigue failure/disconnection of the inlet fuel line to the engine driven fuel pump due to the use of improper materials by someone other than Superior, most likely the original manufacturer.

The evaluation of the materials used in the connection is not part of any annual condition inspection checklist.

Re-torquing fuel line B-nuts during an annual/condition inspection is not required by FAR 43 Appendix D, FAA AC43.13, approved methods, techniques and practices.

Superior personnel completed the annual condition inspection for the subject aircraft using appropriate reference material.

The signoff for the Superior annual condition inspection was appropriate.

I reserve the right to supplement this report should additional information become available.

Respectfully:

A handwritten signature in black ink, appearing to read 'D. Stimpson', with a stylized flourish extending from the end.

Douglas E. Stimpson

N246AK MATERIALS REVIEWED

NTSB Factual Report

NTSB Probable Cause

NTSB Docket

Fire Department Incident Report, Town of Stevenson

Sheriff Incident Report and Photos, Marinette County

Report by Matthew D. Lykins, April 29, 2016

Report by Matthew G. Robinson, April 29, 2016

Deposition and Exhibits of Daniel McGraw, June 2, 2016

Deposition and Exhibits of Matthew D. Lykins, June 16, 2016

Deposition and Exhibits of Matthew Robinson, June 17, 2016

Deposition of Alex Dupras, June 24, 2016

Deposition of Timothy Spreen, June 27, 2016

File of Matthew D. Lykins

Lancair Pilot Operating Handbook and Airplane Flight Manual, for the Lancair 235, 320, 360

Lancair Online Product Support Library, <http://www.lancair.com/support/docs-235-320-360/>

Lancair Construction 320-360 Manual, Chapter 21

Lancair 235/320/360 Annual Type Condition Inspection Checklist

FAA Records and Photos, Civil Aviation Registry, Great Lakes Region, and the Regulatory Support Division

FAA Registration

Documents Produced by Plaintiff, PLTF 000001-PLTF 000402

Superior Aviation Maintenance Records, Work Orders and Logbook Entries, SAL 000001-SAL 000103

FAR 43 Appendix D

AC 43.13-1B

Wreckage Inspection, June 6, 2016

N246AK List of Exhibits

Exemplar Hose

Exemplar Fitting

Exemplar Fuel Pump

Accident Fuel Pump, Fittings and Hoses

Inspection Photos

NTSB Factual Report

NTSB Docket

AC 43.13-1B

FAR 43 Appendix D

Lancair Construction Manual